CALFED OPS GROUP
Operations Briefing

March 24, 2004

N

Trinity= 2.14 MAF

Shasta = 3.75 MAF

Keswick = 4,500 cfs

Sacramento River

Oroville = 3.02 MAF

Feather = 10,000 cfs

Folsom = 0.70 MAF

Nimbus = 4,000 cfs
Freeport = 30,000 cfs

North Bay Aqd.

Clifton Court = 6,680 cfs

Delta

Tracy = 3,500 cfs
Vernalis = 3,400 cfs

So. Bay Aqd.

New Melones = 1.49 MAF

Net Delta Outflow
23,000 cfs

San Joaquin River

DMC

San Luis:
SWP = 1.03 MAF
CVP = 0.97 MAF
Total = 2.00 MAF

Stanislaus = 300 cfs
Tuolumne = 1,500 cfs
Merced = 270 cfs

California Aqueduct

Coastal Branch

Pyramid

Castaic

Silverwood

Southern Reservoir
Storage = 0.69 MAF

Perris

CURRENT SWP/CVP OPERATIONAL STATUS

AVERAGE DELTA HYDROLOGY CONDITIONS

17-Mar-04 thru 23-Mar-04

all values in cfs

Sacramento Rv.
33,000

N

Yolo Bypass
0

East Side Streams
1,100

Net Consumptive Use*
1,400

Net Delta Outflow Index
28,200

Delta Conditions:	Excess as of 12/15/03
Delta Cross Channel Gates:	Closed
7 day avg % of Inflow Diverted:	26.5%

*Consumptive Use minus Runoff based on Stockton precip.

SWP & CVP Diversions
10,000

San Joaquin Rv.
3,800
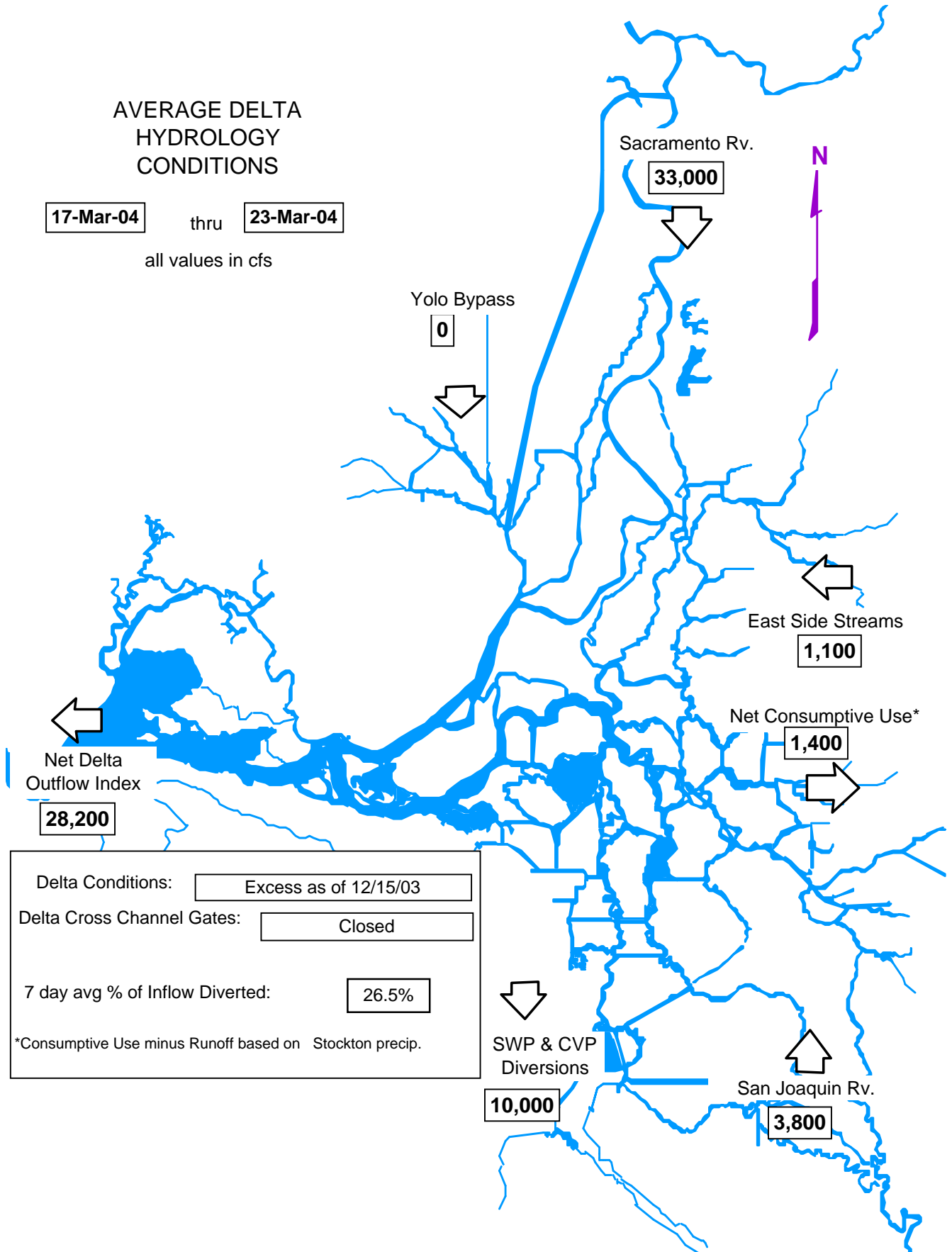
AVERAGE DELTA
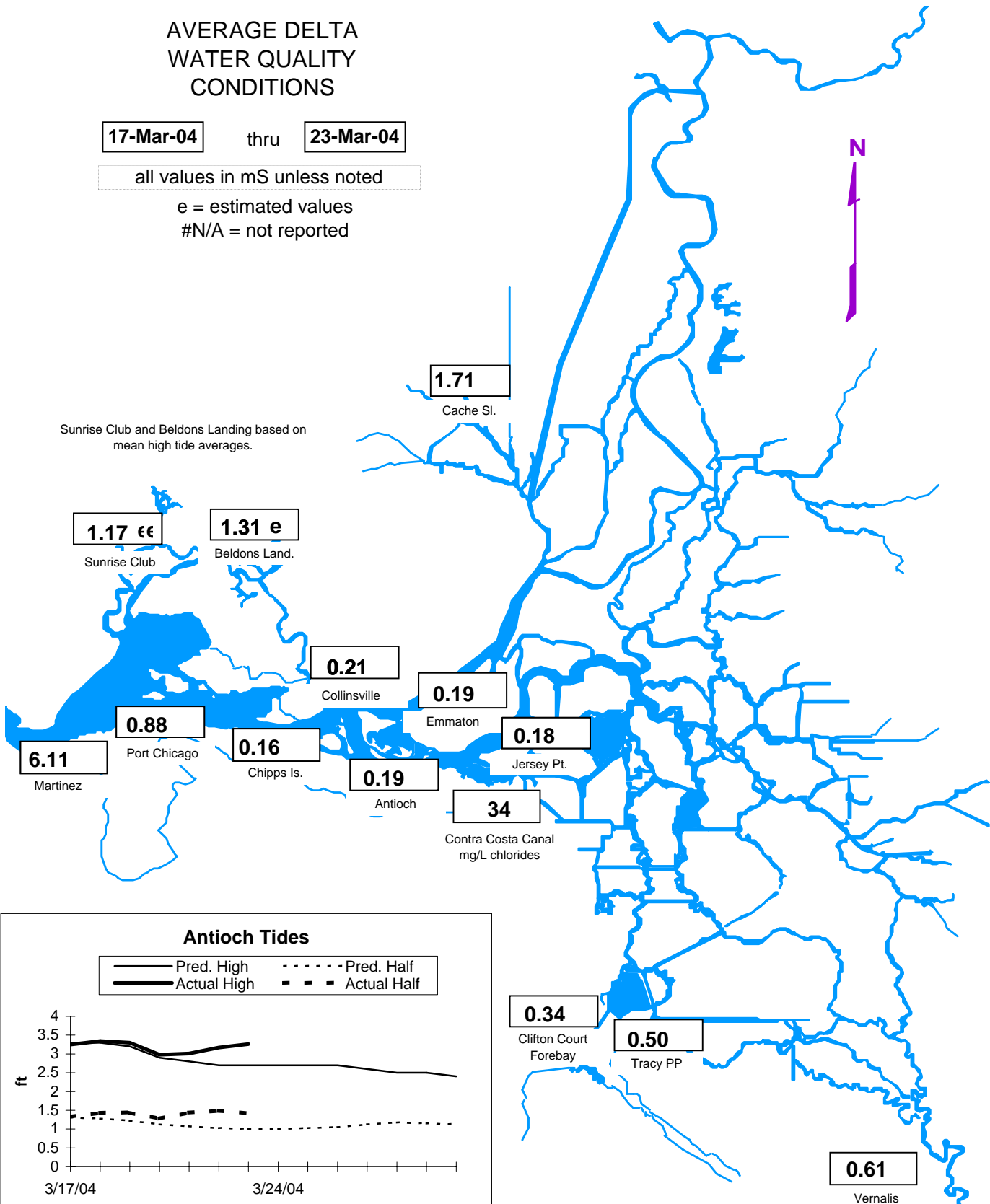# WATER QUALITY
CONDITIONS

| 17-Mar-04 | thru | 23-Mar-04 |

all values in mS unless noted

e = estimated values
#N/A = not reported

Sunrise Club and Beldons Landing based on
mean high tide averages.

N

1.71
Cache Sl.

1.17 ϵϵ
Sunrise Club

1.31 e
Beldons Land.

0.21
Collinsville

0.19
Emmaton

0.18
Jersey Pt.

0.88
Port Chicago

0.16
Chipps Is.

0.19
Antioch

6.11
Martinez

34
Contra Costa Canal
mg/L chlorides

0.34
Clifton Court
Forebay

0.50
Tracy PP

0.61
Vernalis

Antioch Tides

—— Pred. High · · · · Pred. Half
━━ Actual High ━ ━ Actual Half

ft

4
3.5
3
2.5
2
1.5
1
0.5
0

3/17/04   3/24/04
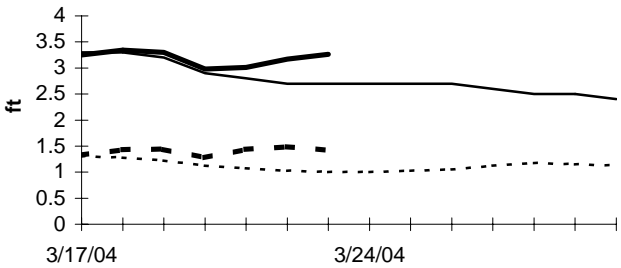
DRAFT | Bay-Delta Standards | DRAFT

Contained in D-1641

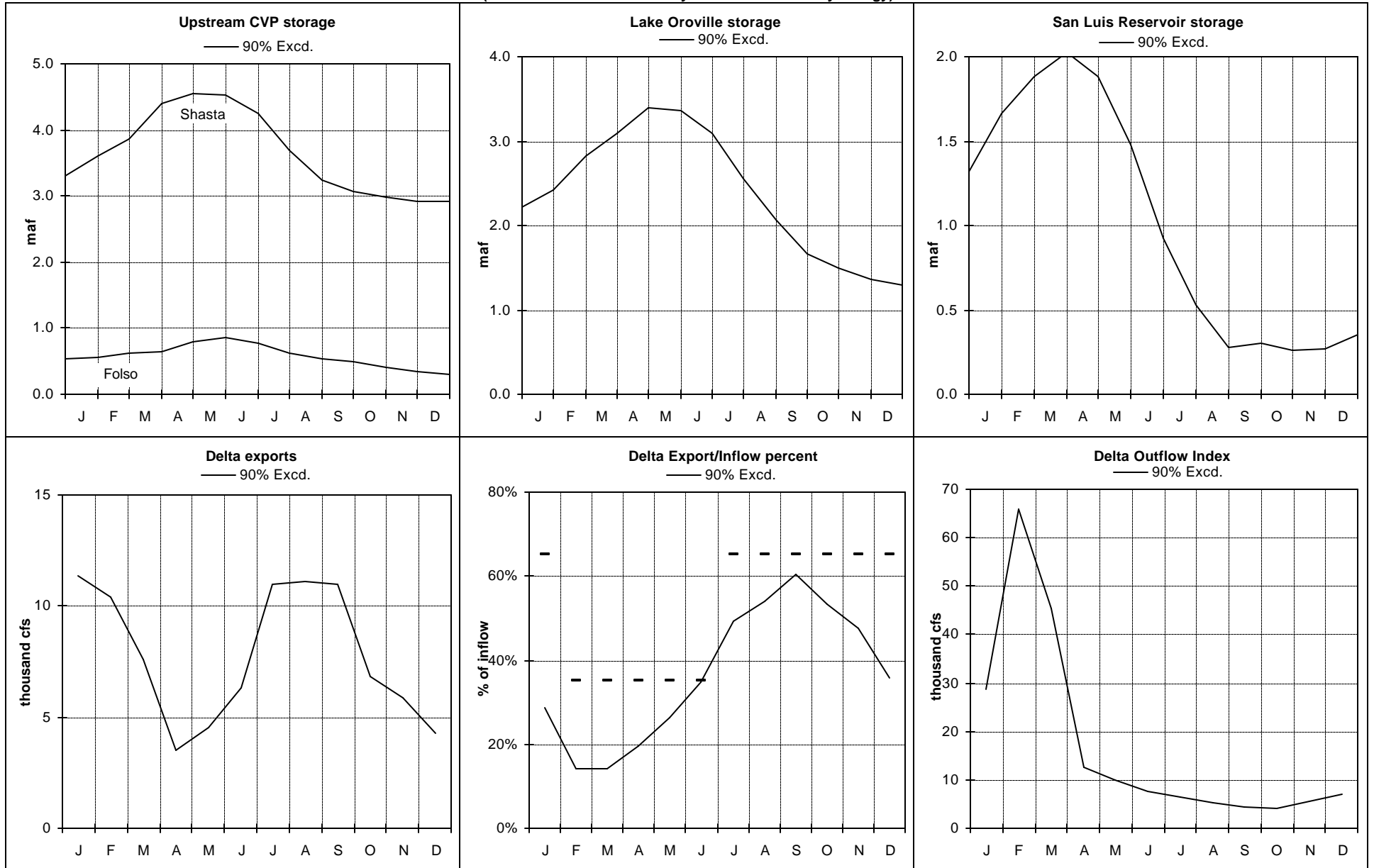| CRITERIA	Mar 2004	Apr 2004	May 2004
FLOW/OPERATIONAL			
• **Fish and Wildlife**			
SWP/CVP Export Limits		Greater of 1,500 cfs or 100% of 3-day avg. Vernalis flow	
Export/Inflow Ratio	35 % of Delta Inflow		
Minimum Outflow - mon.			
- 7 day avg.			
Habitat Protection Outflow, X2	Port Chicago for 27 days, Chipps Island for 31 days	* Port Chicago for ~ 18-20 days, Chipps Island for 30	3 -day running avg. of 11, 400 cfs or Chipps Island for 31 days
River Flows:			
@ Rio Vista - min. mon. avg.			
- 7 day average			
@ Vernalis: Base -min. mon. avg.	2280 cfs	2280 cfs	2280 cfs
- 7 day average	1824 cfs	1824 cfs	1824 cfs
Pulse objective		5480 cfs	gates may close
Delta Cross Channel Gates	Closed		14 days per Op's Group
WATER QUALITY STANDARDS			
• **Municipal and Industrial**			
All Export Locations	Cl <= 250 mg/l		
Contra Costa Canal	Cl <= 150 mg/l for 190 days for Above Normal Water Year Type		
• **Agriculture**			
Western/Interior Delta		Max. 14-day average EC mmhos/cm: 0.45 mS/cm for Wet year	
Southern Delta	30 day running avg. EC <= 1.0 mS/cm	30 day running avg. EC <= 0.7 mS/cm	30 day running avg. EC <= 0.7 mS/cm
• **Fish and Wildlife**			
San Joaquin River Salinity		14-day avg; 0.44 EC	
Suisun Marsh Salinity	8.0 mhtEC	11.0 mhtEC	

Water Year Classification: Above Normal (Based on forecast, 3/1/2004)
SRI (40-30-30 @ 50%) = 8.5 MAF
SJV (60-20-20 @75%) = 2.6 MAF

SWP & CVP CY 2004 Forecasted Operations

(based on 3/1/04 snow survey and historical fall hydrology)

Upstream CVP storage
— 90% Excd.

Lake Oroville storage
— 90% Excd.

San Luis Reservoir storage
— 90% Excd.

Delta exports
— 90% Excd.

Delta Export/Inflow percent
— 90% Excd.

Delta Outflow Index
— 90% Excd.

Flows are monthly averages.

WY 2003/2004 EWA Accounting Summary
Based upon March Study - 90% Exceedance Hydrology
Assumptions: SWP Allocation - 65%; NOD Purchases - 75 TAF; SOD Purchases - 85 TAF; MWD SS - 75 TAF

1 — EWA NOD and SOD Storage ((+ = Acquisitions) and (- = Releases))

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
NOD (Oroville)[0]	0.398					-0.398[3]											0
NOD (YCWA/PCWA)										75[4 5]		-38[4 5]	-38[4 5]				0
Carriage Water Loss												-8	-8				-15
SOD (KCWA/SCVWD)									85[6]	-30[6]	-30[6]	-25[6]					0
SOD (MWD)																	0

2 — EWA Asset Acquisition in SWP San Luis[1]

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
E/I Relaxation																	0
EWA share of SWP gain																	0
Project Pumping to reduce EWA debt																	0
JPOD using excess flows																	0
JPOD using NOD storage																	0
Xfer NOD - Sacramento River[2]												17[4 5]	17[4 5]				35
Xfer NOD - San Joaquin River[2]																	0
SOD SWP Surface/GW Purchases										30[6]	30[6]	25[6]					85
Exchange of EWA assets																	0
Groundwater pumping SOD																	0
Exchange from CVP to SWP in SL																	0
Total Monthly EWA Assets		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**30**	**42**	**17**	**0**	**0**	**0**	**120**

3 — EWA Asset Acquisition in CVP San Luis

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
E/I Relaxation																	0
Project Pumping to reduce EWA debt							0.202										0
JPOD using excess flows																	0
JPOD using NOD storage																	0
Xfer NOD - Sacramento River[2]												13[4 5]	13[4 5]				25
Xfer NOD - San Joaquin River[2]																	0
SOD CVP Surface/GW purchases																	0
Exchange of EWA assets																	0
Groundwater pumping																	0
Exchange from SWP to CVP in SL																	0
Total Monthly EWA Assets	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**13**	**0**	**0**	**0**	**26**

4 — EWA Expenditures at the Export Pumps

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWP export cuts							-50	3	-76	-50							-173
CVP export cuts									-25								-25
Total Expenditures	**0**	**0**	**0**	**0**	**0**	**0**	**-50**	**3**	**-101**	**-50**	**0**	**0**	**0**	**0**	**0**	**0**	**-198**

5 — EWA End-of-Month Incremental Storage Changes

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWP in SL (without Source Shift)	0.057	0	0	0	0	0	-50	3	-76	-20	30	42	17	0	0	0	-53
CVP in SL	-0.202	0.000	0.000	0.000	0.000	0.000	0.202	0	-25	0	0	13	13	0	0	0	0
NOD Storage	0.398	0	0	0	0	-0.398	0	0	0	75	0	-38	-38	0	0	0	0
SOD Storage (non-S.L.)	0.000	0	0	0	0	0	0	0	85	-30	-30	-25	0	0	0	0	0
Total Incremental Storage Changes	**0.253**	**0**	**0**	**0**	**0**	**0**	**-50**	**3**	**-16**	**25**	**0**	**-8**	**-8**	**0**	**0**	**0**	**-53**

6 — EWA End-of-Month Storage Balance at Various Sites

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SWP in SL (without Source Shift)	0.057	0	0	0	0	0	-50	-47	-123	-143	-113	-70	-53	-53	-53	-53
CVP SL	-0.202	-0.202	-0.202	-0.202	-0.202	-0.202	0	0	-25	-25	-25	-13	0	0	0	0
NOD Storage	0.398	0.398	0.398	0.398	0.398	0.000	0	0	0	75	75	38	0	0	0	0
SOD Storage (non-S.L.)	0.000	0	0	0	0	0	0	0	85	55	25	0	0	0	0	0
EWA Asset Balance	**0.253**	**0**	**0**	**0**	**0**	**0**	**-50**	**-47**	**-63**	**-38**	**-38**	**-45**	**-53**	**-53**	**-53**	**-53**

7 — San Luis Reservoir Storage Conditions

	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total Storage (base case)[7]		650	788	1010	1665	1879	2028	1868	1356	775	380	126	211	229	329	630
Encroachment																
Total Storage (EWA case)		650	788 0	1010	1664	1878	1978	1821	1208	607	242	44	158	176	276	577
MWD Source Shifting										25	25	25	-19	-19	-19	-19
Storage (with MWD source shifting)		**650**	**788**	**1010**	**1664**	**1878**	**1978**	**1821**	**1208**	**632**	**292**	**119**	**214**	**214**	**295**	**577**

[0] 2004 NOD Purchases = 65(YCWA) + 10(PCWA). YCWA has firm 65 taf; exercised options for an additional 77.5 taf. PCWA has firm 10 taf; can exercise options for an additional 10 taf.

[1] Aqueduct conveyance and evaporation losses are not included.

[2] Carriage water loss applies to water transfers from the Sacramento River; a 10% conveyance loss applies to water transfers from the San Joaquin River. Carriage water loss in WY 2003 was 0%.

[3] The SWP spilled ~ 400 af of EWA water stored in Oroville during flood control operations.

[4] 2004 YCWA Transfer (Joint place of use)   [5] 2004 PCWA Transfer (Joint place of use)

[6] 2004 SOD Transfers - 85 TAF from KCWA (SWP place of use)

[7] Based upon DWR's 90% (75% Fall) allocation study (dated 3/2004) and the USBR's "Mar90B2" study (dated 3/18/04).

WY 2003/2004 EWA Accounting Summary
Based upon March Operations Study - 50% Exceedance Hydrology
Assumptions: SWP Allocation - 95%; NOD Purchases - 75 TAF; SOD Purchases - 170 TAF; MWD SS - 75 TAF

1 — EWA NOD and SOD Storage ((+ = Acquisitions) and (- = Releases))

1	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
NOD (Oroville) [0]	0.398					-0.398 [3]											0
NOD (YCWA/PCWA)										75 [4,5]		-38 [4,5]	-38 [4,5]				0
Carriage Water Loss												-8	-8				-15
SOD (KCWA/SCVWD)									170 [6]	-50 [6]	-75 [6]	-45 [6]					0
SOD (MWD)																	0

2 — EWA Asset Acquisition in SWP San Luis [1]

2	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
E/I Relaxation																	0
EWA share of SWP gain																	0
Project Pumping to reduce EWA debt																	0
JPOD using excess flows																	0
JPOD using NOD storage																	0
Xfer NOD - Sacramento River [2]												30 [4,5]	30 [4,5]				60
Xfer NOD - San Joaquin River [2]																	0
SOD SWP Surface/GW Purchases										50 [6]	45 [6]	45 [6]					140
Exchange of EWA assets																	0
Groundwater pumping SOD																	0
Exchange from CVP to SWP in SL																	0
Total Monthly EWA Assets		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**45**	**75**	**30**	**0**	**0**	**0**	**200**

3 — EWA Asset Acquisition in CVP San Luis

3	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
E/I Relaxation																	0
Project Pumping to reduce EWA debt							0.202										0
JPOD using excess flows																	0
JPOD using NOD storage																	0
Xfer NOD - Sacramento River [2]																	0
Xfer NOD - San Joaquin River [2]																	0
SOD CVP Surface/GW purchases											30 [6]						30
Exchange of EWA assets																	0
Groundwater pumping																	0
Exchange from SWP to CVP in SL																	0
Total Monthly EWA Assets	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**30**

4 — EWA Expenditures at the Export Pumps

4	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWP export cuts							-50	-14	-152	-50							-266
CVP export cuts									-25								-25
Total Expenditures	**0**	**0**	**0**	**0**	**0**	**0**	**-50**	**-14**	**-177**	**-50**	**0**	**0**	**0**	**0**	**0**	**0**	**-291**

5 — EWA End-of-Month Incremental Storage Changes

5	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWP in SL (without Source Shift)	0.065	0	0	0	0	0	-50	-14	-152	0	45	75	30	0	0	0	-66
CVP in SL	-0.202	0.000	0.000	0.000	0.000	0.000	0.202	0	-25	0	30	0	0	0	0	0	5
NOD Storage	0.398	0	0	0	0	-0.398	0	0	0	75	0	-38	-38	0	0	0	0
SOD Storage (non-S.L.)	0.000	0	0	0	0	0	0	0	170	-50	-75	-45	0	0	0	0	0
Total Incremental Storage Changes	**0.261**	**0**	**0**	**0**	**0**	**0**	**-50**	**-14**	**-7**	**25**	**0**	**-8**	**-8**	**0**	**0**	**0**	**-61**

6 — EWA End-of-Month Storage Balance at Various Sites

6	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SWP in SL (without Source Shift)	0.065	0	0	0	0	0	-50	-64	-216	-216	-171	-96	-66	-66	-66	-66
CVP SL	-0.202	-0.202	-0.202	-0.202	-0.202	-0.202	0	0	-25	-25	5	5	5	5	5	5
NOD Storage	0.398	0.398	0.398	0.398	0.398	0.000	0	0	0	75	75	38	0	0	0	0
SOD Storage (non-S.L.)	0.000	0	0	0	0	0	0	0	170	120	45	0	0	0	0	0
EWA Asset Balance	**0.261**	**0**	**0**	**0**	**0**	**0**	**-50**	**-64**	**-71**	**-46**	**-46**	**-54**	**-61**	**-61**	**-61**	**-61**

7 — San Luis Reservoir Storage Conditions

7	C/O	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total Storage (base case) [7]		650	788	1010	1665	1879	2029	1818	1382	849	496	252	344	371	693	1011
Encroachment																
Total Storage (EWA case)		650	788 0	1010	1664	1878	1979	1754	1141	608	330	161	283	310	632	950
MWD Source Shifting										25	25	25	-19	-19	-19	-19
Storage (with MWD source shifting)		**650**	**788**	**1010**	**1664**	**1878**	**1979**	**1754**	**1141**	**633**	**380**	**236**	**339**	**347**	**651**	**950**

[0] 2004 NOD Purchases = 65(YCWA) + 10(PCWA). YCWA has firm 65 taf; can exercise options for an additional 120 taf. PCWA has firm 10 taf; can exercise options for an additional 10 taf.

[1] Aqueduct conveyance and evaporation losses are not included.

[2] Carriage water loss applies to water transfers from the Sacramento River; a 10% conveyance loss applies to water transfers from the San Joaquin River.
  Carriage water loss in WY 2003 was 0%.

[3] The SWP spilled ~ 400 af of EWA water stored in Oroville during flood control operations.

[4] 2004 YCWA Transfer (Joint place of use)   [5] 2004 PCWA Transfer (Joint place of use)

[6] 2004 SOD Transfers - 115 TAF from KCWA (SWP place of use); 25 TAF from MWD (SWP place of use); and 30 TAF from SCVWD (CVP place of use)

[7] Based upon DWR's 50% (75% Fall) allocation study (dated 3/2004) and the USBR's "Mar50B2" study (dated 3/18/04).